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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,270	01/31/2002	Claus Erdmann Furst	45900-000548/US	5415
30593	7590	12/05/2003	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			WAMSLEY, PATRICK G	
P.O. BOX 8910			ART UNIT	PAPER NUMBER
RESTON, VA 20195			2819	

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/059,270

Applicant(s)

FURST, CLAUS ERDMANN

Examiner

Patrick G Wamsley

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 36-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## **DETAILED ACTION**

### ***Drawings***

The examiner has approved the proposed drawing correction.

### ***Claim Objection***

Claim 41 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form.

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 36-42 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,805,093 to Heikkila et al, hereafter Heikkila.

For claim 36, Heikkila provides a method of designing a sigma-delta modulator comprising cascaded integrators [abstract, line three] and comparators in a defined signal path, comprising the steps of providing an input signal  $[A_{in}]$ ; determining signal amplitude at one or more integrator outputs; and adjusting one or more signal gains [with the scaling means 21 / 22 / 23 / 24].

For claim 37, Heikkila's scaling means adjust at least two integrators.

For claim 38, Heikkila's scaling means include coefficients of 1, 4, 16, and 64. Thus, it's possible for amplitudes to be reduced to less than 20% of full scale.

For claim 39, Heikkila's scaling means adjusts integrator gains.

For claim 40, Heikkila's scaling means are located in feedback loops.

For claim 41, Heikkila discloses a sigma-delta modulator.

For claim 42, Heikkila determines if a modulator is in an unstable mode [col. 3, line 37], equivalent to the recited threshold procedure. The negative feedback applied by Heikkila's scaling means reduces the output, restoring the stable mode.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila in view of Puthuff, cited in the previous Office Action.

Unlike claims 43-45, Heikkila is silent regarding microphone modules and mobile units. In contrast, Puthuff describes a communication device having a hearing aid [col. 1, line 23], microphone [col. 1, line 26], cellular phone [col. 1, line 31], and headset [400 / 402]. At the time of the invention, it would have been obvious use Heikkila's modulator in Puthuff's system. The motivation would have been to provide stable communication network with many uses, as disclosed by Puthuff.

### ***Response to Arguments***

Applicant's arguments with respect to claims 36-45 have been considered but are moot in view of the new grounds of rejection.

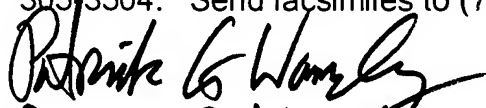
### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick G. Wamsley whose telephone number is (703) 305-3504. Send facsimiles to (703) 872-9306 or (703) 746-8802.

  
Patrick G. Wamsley

November 28, 2003